IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s):	Ossi Kalevo	CONF. NO.	7931
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TITLE:	A METHOD AND ASSOCIATED DEVICE FOR FILTERING DIGITAL VIDEO IMAGES		
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Mail Stop AF
Commissioner of Patents
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicants respectfully submit that Kalevo fails to disclose or suggest:

> examining the types of the first and second encoding methods to determine a value of at least one parameter of the adaptive block boundary filtering operation performed on the block boundary,

as essentially recited by independent claims 1, 19, 37-43, 54-57, and 68.

Kalevo discloses that a certain number of pixels (n) are selected for examination from both sides of a block boundary, where the number of pixels selected depends on the image content of the frame in the environment of the block boundary (see abstract). More specifically, according to Kalevo, the number of pixels to be corrected, the characteristic features of the filter being used and the size of the filtering window depend upon the following factors (see page 4, lines 8 to 20 of WO 98/41025):

a) the difference between pixel values across a block boundary to be filtered;

b) the size of the quantization step of the transformation coefficients used in transformation coding of the image blocks; and

c) differences in values between pixels on the first side of the block boundary and corresponding differences between pixels on the second side of the block boundary.

The present claims examine the types of the first and second <u>encoding methods</u> to determine a value of at least one parameter of the adaptive block boundary filtering operation performed on the block boundary. In contrast, Kalevo looks at the size of the quantization step of the transformation coefficients used in transformation coding of the image blocks. Thus, Kalevo does not examine the types of encoding methods but only looks at the size of the quantization step of the transformation coefficients.

Applicants respectfully submit that looking at the size of the quantization step of the transformation coefficients used in transformation coding of the image blocks does not equate to examining the types of encoding. A large difference value or significantly different quantization parameters <u>does not</u> indicate that different encoding methods have been used on both sides of the block boundary. There is, in general, no fixed relationship between the size of the quantization step and the encoding methods chosen to encode the image blocks. Different encoding methods could use the same or different quantization parameters.

Encoding methods are generally directed to predicting the information in a frame and identifying the differences between the predicted and actual frames. The difference or residual information is then coded. A transformation is usually applied to the residual information. The transform coefficients of the residual information are then quantized. The quantization parameters may, for example, determine the amount of information to be encoded, but do not determine the

encoding method. Generally examining the size of the quantization step of the transformation coefficients will give no hint of the encoding method. Thus, a large difference value or significantly different quantization parameters does not indicate that different encoding methods have been used on both sides of the block boundary, and examining the size of the quantization step of the transformation coefficients is not the same thing as examining the types of the encoding methods.

As mentioned above, Kalevo clearly disclose that selection is based on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks. Hence, Kalevo clearly implies that the image content can affect the difference of the pixel values across the block boundary and the size of the quantization step. However, image contents and encoding method are not the same thing. For example, in practice, the following situations could exist:

> a) one situation in which a large difference value exists across a block boundary although the encoding methods across block boundaries were the same, and

> b) another situation in which a small difference value exists across a block boundary although the encoding methods across block boundaries were not the same.

It should be appreciated that there is, in general, no fixed relationship between the level of pixel value differences within/between adjacent blocks and the encoding methods chosen to encode the image blocks. It should also be appreciated that there is, in general, no fixed relationship between the size of the quantization step size and the encoding methods chosen to encode the image blocks.

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Thus, the block boundary filtering method presented in Kalevo does not involve examination of a first encoding method that was used to encode a decoded image block on a first side of the block boundary and examination of a second encoding method that was used to encode a second decoded image block on a second side of the block boundary in order to determine a value of at least one parameter of the adaptive boundary filtering operation performed on the block boundary, as recited in the present independent claims.
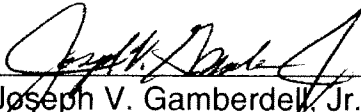
Kalevo neither discloses nor provides any suggestion that an encoding method used to encode an image block can be taken into account when performing filtering operations intended to reduce blocking artifacts. In the present claims it is the encoding methods used to encode image blocks on a first and a second side of the block boundary that determine how the filtering is performed. Applicants respectfully submit that there is no fixed relationship between the size of the quantization parameter and the encoding methods chosen to encode the image blocks.

The present claims examine the encoding methods while Kalevo looks at the size of the quantization step of the transformation coefficients.

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Respectfully submitted,

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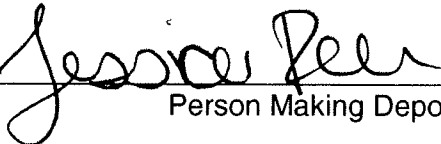Joseph V. Gamberdell, Jr.   Date
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